REMARKS

I. Status of the Claims

At the time of the Action, Claims 1-30 were pending and stand rejected under Section 103(a). This rejection is addressed below.

II. The Section 103(a) Rejection

In the Action, Claims 1-30 stand rejected under Section 103(a) as being obvious over U.S. Patent No. 6,306.261 to Meschenmoser et al. (Meschenmoser) in view of U.S. Patent No. 5,953,230 to Moore (Moore) and U.S. Patent 6,158,576 to Eagles et al. (Eagles). Meschenmoser is characterized as disclosing a shoe press for a paper web that includes force sensors located "in the saddle [of the press], or at the inside surface of the circulating continuous flexible press belt, or in the opposing press roll." The Action at page 2. The Action concedes that Meschenmoser fails to disclose the sensors being within the structure of the press belt. Moore is cited for disclosing sensors within the nip, although the Action concedes that Moore also fails to disclose incorporation of sensors directly within the structure of a press belt. Eagles is cited for "incorporating sensors into the structure of a processing belt." *Id.* at page 3. Eagles is directed to a belt or fabric that includes filaments, film, or a coating that is incorporated into a belt, any of which may be treated with dyes or the like that emit electromagnetic radiation that is detectable by a detector. Eagles states that the detection of the electromagnetic radiation from the sensor makes it possible for the machine operator to learn about, for example, the belt velocity, belt alignment, degree of belt wear, belt temperature, pH and sheet conditions. Based on these characterizations, the Action concludes that the claimed subject matter is obvious.

In response, Applicants note that Claim 1 recites, *inter alia*:

> a substantially cylindrical belt . . . **including embedded therein a communications cable having a plurality of sensors** configured to generate signals responsive to an operating parameter of said shoe press.

A shoe press belt of this configuration may have significant advantages over prior shoe press belts. Because the communications cable is embedded in the belt (rather than being exposed

on either the inner or outer surface of the belt), the cable, and in particular its sensors, can be protected from exposure to wear and abuse that would typically accompany use of the belt. Ordinarily, the inner surface of a shoe press belt contacts the shoe press itself, and the outer surface of the belt contacts a press felt. In either instance, the contact of sensors directly to these other structures can impact the accuracy and the longevity of the sensors. Also, the use of a communications cable can enable the rapid delivery of accurate signals regarding the operational parameters of the belt, and can do so irrespective of the relative positions of the sensors and the processing unit. In addition, many shoe press belts have venting grooves or other topography on the outer surface (*see, e.g.*, Claim 7); an embedded communications cable would not face disruption from this type of surface. Moreover, in the event that the sensor system requires maintenance or replacement, it is much easier and less disruptive to papermaking operations to replace a belt than to shut down an entire shoe press.

Turning now to the cited references, Meschenmoser discloses a shoe press in which force sensors (of undisclosed configuration) are either "provided in the saddle" (*i.e.*, in the shoe of the shoe press – *see* Meschenmoser at column 2, line 29), in separate segments thereof, on the surface of a mating roll, or in the inner surface of the belt that passes between the saddle and the mating roll. In any of these instances, the sensors (particularly sensors attached to a communications cable) would be subject to significant wear and potential abuse, which would likely negatively impact their durability. Also, there is nothing in Meschenmoser that suggests even that a communications cable with sensors thereon be used, as Meschenmoser only generally discloses "force sensors" or "pressure sensors" without specifying any type of force or pressure sensor.

Moore is cited in the Action for the disclosure of a sensing system to measure a nip pressure profile. The Action correctly concedes that Moore fails to disclose incorporating sensors directly within the structure of a press belt. Applicants note further that the Moore device is completely separate from the papermaking machine itself. It is employed as a diagnostic tool to assess pressure and nip width within the nip, and is not intended for continuous use with an operating paper machine nip press. As such, Moore's device is not particularly applicable to the embedding use of a communications cable with a plurality of sensors within a shoe press belt that operates continuously with a shoe press.

Eagles is cited as teaching "incorporating sensors into the structure of a processing belt." The Action at page 3. However, Applicants submit that the teachings of Eagles that are in any way relevant to the present application are limited to the interweaving of "filaments" within endless fabrics, wherein the filaments have been dyed with dyes that emit a particular class of electromagnetic radiation. As the filaments pass through a detection point, they emit radiation that is detected by a detector. Generally speaking, the electromagnetic radiation that is emitted and detected by the detector is light energy (note from the Examples of Eagles that the frequencies of the radiation emitted by filaments used therein range from 558nm to 620nm, which are within the visible light spectrum). As such, a detector for radiation emitted by these filaments would require a "line-of-sight" positional relationship between the filaments and any detector in order for the detector to receive any information. Thus, if any of the filaments of Eagles were "embedded" in a shoe press belt as recited in Claim 1, they would not produce signals that would be detectable by a remote detector, because an embedded filament would not have line-of-sight exposure to the detector.

In summary, Applicants strongly submit that the ordinarily skilled artisan would not combine Meschenmoser, Moore and Eagles to produce the subject matter recited in Claim 1. The Eagles filament would simply not work (*i.e.*, it would not produce detectable signals) in the devices of either Meschenmoser or Moore. There is nothing in Moore to suggest embedding a communications cable with sensors thereon in a continuously operating belt of a shoe press. Meschensmoser fails to suggest a communications cable with sensors, much less a communication cable with sensors that is embedded in a shoe press belt. None of the references suggest the considerable performance advantages that may be achieved with the recited subject matter. Accordingly, Applicants respectfully submit that the ordinarily skilled artisan would not have conceived the subject matter of Claim 1 based on the teachings of the cited references, and respectfully request that the rejection of Claim 1 and claims depending therefrom be withdrawn.

Applicants further submit that Claim 15 and claims depending therefrom define over the art of record for the same reasons as set forth above.

III. New Claims 31-45

Applicants have submitted Claims 31-45 above for entry and examination. Applicants note that Claim 31 defines over the art of record for the same reasons set forth above for Claims 1 and 15. Claims 32-45 depend from Claim 31 and provide a more complete set of claims for this invention.

IV. Conclusion

Inasmuch as all of the outstanding issues raised in the Action have been addressed, Applicants respectfully submit that the application is in condition for allowance, and requests that it be passed to allowance and issue.

Respectfully submitted,

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